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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,891	08/04/2003	Chun-Liang Lee	LA-7196-122/10309331	6676

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FULBRIGHT AND JAWORSKI L L P
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EXAMINER

DANG, KHANH

ART UNIT PAPER NUMBER

2111

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/633,891

Applicant(s)

LEE, CHUN-LIANG

Examiner

Khanh Dang

Art Unit

2111

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

RD

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emerson (5,898,861).

With regard to claim 1, Emerson discloses a hot-pluggable peripheral input device coupling system for coupling one or more peripheral input devices to a server platform (Emerson particularly discloses that for a rack-mounted server, it may be desirable only to have a peripheral input device such as a keyboard when necessary to do server-level configuration, and to otherwise operate without the keyboard. Therefore, it is desirable to allow to allow the plugging and unplugging of a peripheral input device, such as a keyboard, dynamically--that is, while the system is in operation), with the peripheral input devices (keyboard(s) and mouse(s), for example) being connected to a specific type of input connector having a set of power lines and a set of data lines (it is clearly inherent that a keyboard or mouse must include a specific type of connector, i.e. PS2, so that the keyboard or mouse can be powered via the connector's power lines and communicated with the host rack server, for example, via the connector's data lines), for the purpose of allowing the peripheral input devices to input data and

Art Unit: 2111

commands to the server platform; the hot-pluggable peripheral input device coupling system comprising: a connecting port (it is clear that the coupling system of the server rack must include a connecting port so that the input connector of a peripheral device such as keyboard or mouse can be plugged in), which is pluggable to the input connector (as explained earlier, the input connector is mated with the connecting port), and which bifurcates the power lines and the data lines of the input connector (as explained earlier, the keyboard or mouse can be powered via the connector's power lines and communicated with the host rack server, for example, via the connector's data lines, See also Figs. 6 (a, b) and description thereof); a power module (in Emerson, the voltage/power supply to the peripheral device such as a keyboard or a mouse), which is coupled via the connecting port to the power lines of the input connector for supplying power to the peripheral input devices (a keyboard or a mouse, for example); a hot-plug detection module, which is coupled to the power module (keyboard presence sensing circuits 208 and 210 employing keyboard sensing logic. Based on the presence or absence of the keyboard(s), the IRC 170, in conjunction with system management mode (SMM) 212 firmware, detects, controls, and couples and uncouples the keyboard(s) from the system), and which is capable of generating a hot-plug enable signal in the event of the power module being electrically connected to the peripheral input devices (keyboard presence sensing circuits 208 and 210 employing keyboard sensing logic. Based on the presence or absence of these keyboards 157 and 159, the IRC 170, in conjunction with system management mode (SMM) 212 firmware, detects, controls, and couples and uncouples these keyboards 157 and 159 from the system.

See also Figs. 6 (a, b) and description thereof). Emerson further discloses a management control module (the IRC 170, in conjunction with system management mode (SMM) 212 firmware, detects, controls, and couples and uncouples the keyboard(s), detected by keyboard presence sensing circuits 208 and 210 employing keyboard sensing logic, from the system). In addition, Emerson recognizes that “[c]omputer servers increasingly demand a high degree of fault tolerance.”

With regard to claim 2, it is clear from Emerson that the server platform is a rack server or blade server.

With regard to claim 3, as discussed above, it is clear that the peripheral input devices include a keyboard and a mouse.

With regard to claim 4, in Emerson, the keyboard is the standard IBM PC compatible keyboard. Note that PS/2 is developed by IBM for connecting a mouse keyboard to a PC. Thus, it is clear that the input connector a PS/2 connector.

With regard to claim 5, the output voltage of the voltage regulator 260 is provided to the anodes of two diodes 274 and 276. The cathode of the diode 274 is coupled to the inverting input of an operational amplifier 278 after being passed through an input resistor 279 (preferably around 20K ohms). The cathode of the diode 276 is coupled to the non-inverting input of the op amp 278 through an input resistor 280 (again, preferably 20K ohms). The cathode of the diode 276 is also coupled to ground through a resistor 281 (preferable around 100K ohms). The output of the op amp 278 is coupled to its inverting input through a feedback resistor 282 (preferably around 2.2M ohms). That output is provided to the cathode of a Zener diode 283, which preferably has a

Art Unit: 2111

Zener breakdown voltage of around 6.8 volts. When the op amp 278 provides a 12 volt output, the anode of the Zener diode 283 will thus be around 5 volts, providing the KBDPR0 signal at a logical true level of around 5 volts. The KBDPR0 signal is pulled low via a resistor 284 to ground. The cathode of the diode 274 is also provided as a KBD0VDD signal through an inductor 285. Further, a diode pack 286 prevents an over voltage condition after unplugging. The significance of the diode 262 is now apparent. By forcing the voltage regulator 260 output voltage one diode drop above 5 volts, the voltage at the cathode of the diode 274 when a keyboard is attached is thus 5 volts. In operation, the output of the voltage regulator 260 is provided to the inputs of the op amp 278 through the diodes 274 and 276, and the resistors 279 and 280. When there is no load on the KBD0VDD signal, such as when a keyboard is not attached, the non-inverting input of the op amp 278 is around 5 volts, and the inverting input of the op amp 278 is at 5 volts. Therefore, the output of the op amp 278 is stable at around 5 volts, and KBDPR0 is at a low voltage level, or false. When a keyboard is installed, current flows through the diode 274, causing an increased voltage drop. Therefore, the inverting input of the op amp 278 drops slightly relative to the non-inverting input. To compensate, the op amp 278 drives its output high (to a rail of 12 volts), given the high gain of the resistor combination 282 and 279. Thus, KBDPR0 goes to around 5 volts, or true, indicating keyboard presence. In this way, the presence or absence of a keyboard is detected through minute changes in the current flowing through the primary keyboard 157 supply voltage KBD0VDD or the corresponding secondary keyboard 159 supply voltage KBD1VDD. This presence is indicated by the signals KBDPR0 and KBDPR1,

active high signals which internal to the IRC 170 are mapped to two signals KBD.sub.-- PRESEN.sub.-- RAW>1:0!, which are active high signals.

Claims 6-11 contain limitations that have already discussed above. Therefore, with regard to claim 6-11, see discussion above.

Emerson does not particularly disclose the use of an additional management control module IRC 170 for fault tolerance. Note also that the IRC 170 can be plugged into an expansion slot and served, in conjunction with system management mode (SMM) 212 firmware, to detect, control, and couple and uncouple the keyboard(s), detected by keyboard presence sensing circuits 208 and 210 employing keyboard sensing logic, from the system.

However, providing an additional module for fault tolerance is old and well-known as evidenced by at least Goodrum et al. Goodrum discloses that control is switched from a first server to a second server in a fault tolerant system. The first and second servers are coupled with an expansion bus in an expansion box for communication with the expansion bus. An indication is provided to the second server to indicate the activity state of the first server. Communication between the first server and the expansion box is disabled if the indication indicates the first server is inactive. Communication between the second server and the expansion bus is disabled if the indication indicates that the first server is active. Communication between the second server is enabled if the indication indicates that the first server is inactive.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Emerson with an additional management module IRS

Art Unit: 2111

170, since the use of an additional module for fault tolerance is old and well-known as evidenced by at least Goodrum; and providing Emerson with an additional management module IRS 170 for the purpose of fault tolerance only involves ordinary skill in the art.

U.S. Patent Nos. 5,222,228 to Asprey, 6,363,452 to Lach, 5,834,856 to Tavallaei et al., 6,516,367 to Barenys et al., US 2004/0088464 to Parameswaran, and US 2005/0050272 to Behrens et al. are cited as relevant art.

Asprey discloses a signal generator for generating a signal to indicate whether a keyboard is connected or disconnected from the system.

Lach discloses a method and apparatus for adding or removing a peripheral device without having to power down the computer system (hot plug).

Tavallaei discloses a computer server system including redundant devices that are periodically checked in order to determine whether the redundant devices would be operational if the primary devices are failed.

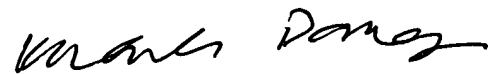
Barenys et al. discloses an apparatus for detecting the presence of devices, particular hot plug devices.

Parameswaran discloses an apparatus for detecting hot-plugging nodes or devices in a server platform.

Behrens et al. discloses modular rack servers, each having connection to expansion devices via a hot-swappable interface.

Art Unit: 2111

Any inquiry concerning this communication should be directed to Khanh Dang at telephone number 571-272-3626.

A handwritten signature in black ink, appearing to read "Khanh Dang". The signature is fluid and cursive, with the first name "Khanh" and last name "Dang" clearly distinguishable.

**Khanh Dang
Primary Examiner**